FUTURE PROOF LEARNING - NEP ALIGNED
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Certificate in AUTOCAD-MECHANICAL

DURATION: 90 Hours

TOTAL CREDITS: 3

COURSE SYLLABUS

Objective

The main objective of Auto cad- Mechanical is to create precise 2D and 3D drawings used in various engineering and design fields such as machine parts, automobile components etc

Exit Profile

- Knowledge in Mechanical CAD drawing
- Knowledge to draw 2D and 3D views of mechanical components
- 2D & 3D design

Career Path

- Mechanical Cad draftsman
- Mechanical designer

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Course Outline

Course Name:	**Certificate in Autocad- Mechanical**	**Duration:**	**90 H**
Module	Topic	Duration	Total Duration
Module -I	Introduction to AutoCAD 2D	3	50 H
	Design features in AutoCAD	2	
	2D Drafting tool	15	
	Modifying tools	10	
	Layers, Arrays	5	
	Dimensioning	3	
	Object Properties, Hatching	2	
	Layout, Publish	2	
	Exercises	8	
Module -2	Introduction to AutoCAD 3D	2	40 H
	3D Modelling	6	
	Editing in 3D Modelling	4	
	Surface Modelling	6	
	Mesh Modelling	5	
	Section, Layout	2	
	Material, Camera, Light, Render	5	
	Exercises	10	

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Course In Detail

MODULE - 1:

INTRODUCTION TO AUTO CAD 2D

- Introduction to Auto cad 2D,
- Understanding the basic terminology in Auto cad.
- Exploring User Interface system
- Co-ordinate systems
- Display control
- File Management
- Unit, Limit

DESIGN FEATURES IN AUTO CAD:

- Drafting Settings
- Polar, Ortho, Grid, Snap
- Dynamic, Input
- Quick Properties.
- Selection Cycling

2D DRAFTING TOOLS:

- Line, Circle, Rectangle, Polygon, Arc, Ellipse
- Polyline, Donut, Point
- Pline, Multiline, Spline

MODIFYING TOOLS:

- Move, Copy, Mirror, Offset
- Rotate, Scale, Stretch, Lengthen
- Trim, Explode, Extend, Break
- Chamfer, Fillet
- Align, Join

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LAYERS, ARRAYS

- Layer Properties Manager
- Layers and Layer Properties
- Performance analysis
- Layer State Manage
- Arrays – Rectangular, Polar and Path arrays

DIMENSIONING

- Dimension style manager
- Dimension- Linear, Aligned, Radial, Angular, Arc length
- Dimension Style, Baseline and continued dimension
- Quick dimension
- Ordinate Dimension

OBJECT PROPERTIES, HATCH

- Property window
- Color command
- Line types, Line weight
- Match properties
- Hatch- Edit, gradient, Pattern

LAYOUT, PUBLISH

- PAGESETUP
- MSPACE
- PLOT
- PUBLISH
- Arrays – Rectangular, Polar and Path arrays
- Plot style

EXERCISES

- Practice the Exercises related to Mechanical Engineering drawing
- Draw and Design mechanical components

MODULE - 2:

Introduction to Auto cad 3D

- Types of 3D models
- Visual Style manager
- Wireframe, surface, solid models
- UCS, V Cube, Steering wheel

3D MODELLING

- Solid primitives
- Extrude, Press pull
- Loft
- Sweep
- Revolve
- Poly solid

EDITING IN 3D MODELLING

- Union, Subtraction, Intersection
- 3D fillet, 3d chamfer
- Taper face, Extrude face
- Slice, thicken
- Shell
- Imprint

SURFACE MODELLING

- Planar surface
- Network surface
- Surface patch
- Surface offset
- Surface extrude, revolve, sweep
- Surface fillet, trim
- NURBS surfaces

MESH MODELLING:

- Mesh primitives

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- Rev surface
- Edge surface
- Rule surface
- Tab surface
- Smooth object
- Extrude mesh surface

SECTION, LAYOUT

- Section plane
- Introduction to layout
- PAGESETUP
- Plot
- Layout1, Layout2
- View Ports

MATERIAL, CAMERA, LIGHT, RENDER

- Material- Mapping, browser,
- Lights- Different types
- Sun status, shadow
- Camera- Properties
- Layout1, Layout2
- View Ports
- Render
- Render destination
- Creating animation

EXERCISES

- Practice the Exercises related to Mechanical Engineering 3d drawing
- Draw and Design mechanical 3d components